

REMARKS

Applicants hereby amend Claims 1, 6 and 9 for clarity and add Claims 12-14. In view of the following discussion, all of Claims 1-14 are believed in condition for allowance.

Currently, all of Claims 1-11 are rejected over the combinations of prior art set forth in the Office Action. It is noted that the Office Action cover sheet identifies all of Claims 1-11 as being rejected, but Claim 11 is not identified in the rejections as formulated in pages 2-4 of the Office Action. Claim 11 relates to the flying lead part and the formation thereof. This flying lead part is formed by etching the insulating layer after formation of the wiring part on the insulating layer by the semi-additive method and is permitted by the method of the invention. The feature of Claim 11 is not believed to be disclosed, taught or suggested by the prior art. However, since Claim 11 is not specifically referenced in the rejections, further clarification as to this feature is respectfully requested.

More particularly as to the remaining claims, Applicants respectfully submit that independent Claims 1, 6 and 9 are not disclosed, taught or suggested by the prior art of record and particularly, the primary reference, Bennin et al., which reference discloses providing a three-layer laminate as the starting material thereof.

As to independent Claims 1, 6 and 9, Applicants respectfully note that the claimed method as defined in all of these independent claims requires a two-layer laminate comprising an insulating layer and a metallic layer wherein the claimed method includes a step of forming a wiring part on a side of the insulating layer by the semi-additive method. Applicants hereby clarify Claims 1, 6 and 9 to define that the wiring part is defined by a pattern of conductive material and that forming of the wiring part on the insulating layer adds a third layer to the laminate. This arrangement as claimed is believed to distinctly differ from the method of Bennin which starts with a three-layer laminate.

More particularly, Columns 7 and 8 of Bennin specifically disclose the steps of the disclosed method.

For the first step disclosed in Column 7, lines 4-51, this first step specifically provides a multi-layer laminate sheet 10 which has three layers, namely a first layer 50, a middle second layer 90 and a third layer 70. There is no disclosure that the starting laminate has less layers and in fact, the method as disclosed in Bennin is believed to specifically require at least three layers as the initial starting material. While the first, second and third layers of Bennin comprise a metal spring layer, an insulating layer and a conductive material layer, the method thereof distinctly differs from Applicants' claimed arrangement. In particular, the multi-layer laminate sheet 10 is illustrated in Figure 3 as being a sheet of stock material wherein the three layers 50, 70 and 90 have the same basic rectangular shape and size.

The second step of the Bennin method is disclosed in Column 7, lines 53 through Column 8, line 24 wherein the second step is to "form and pattern the two outside metal layers, first layer 50 and third layer 70, into elements for the desired laminate structure." Therefore, the metal layer and the conductive layer are formed during the second step from the outside in. It is noted first that the second layer supports the metal layers throughout the etching process as disclosed at the bottom of Column 7. Bennin discloses that the third layer 70 is chemically etched. Since the conductive layer 70 is already provided and laminated to the insulating layer, the etching step is believed to be required since the conductive layer is already in place and may only be formed by removal of material therefrom.

The third step disclosed in the middle of Column 8 of Bennin then discloses shaping the middle second layer 90.

While it is noted that a fourth manufacturing step is disclosed in Column 8 wherein plating of "selected areas" of the first layer 50 and the third layer 70 may be conducted. This plating is referenced as "terminal contacts plating" and

is specifically disclosed as only being provided on the connector sites of the layers.

More particularly as to Applicants' claimed invention, Claims 1, 6 and 9 define a common method step thereof as "forming" a wiring part wherein this wiring part is defined by a pattern of conductive material which is believed to be inherent in the claim but added merely for clarity. Additionally, these independent claims also clarify that the forming of the wiring part adds a third layer to the laminate to further clarify that the initial starting material is a two-layer laminate and the wiring part is added thereto by the semi-additive method. This arrangement distinctly differs from Bennin whether considered alone or in combination with Horiuchi et al.

In particular, the semi-additive method is a method wherein material, i.e. conductive material, is added to a surface in this case an insulating layer to form the wiring part. Therefore, forming of the wiring part by the semi-additive method involves the addition of material to the insulating layer and is not equivalent to the etching step of Bennin which requires removal of a continuous, pre-existing layer.

Therefore, even though Horiuchi is cited as disclosing a semi-additive method, one would not use the semi-additive method to replace out the etching step of Bennin since the conductive layer already exists as part of the laminate in Bennin and portions of the conductive material must be etched out and not added. In support, Column 8, lines 63-65, disclose that the different etched layers are not separated during manufacturing.

Additionally, the Office Action references that "Bennin further teaches metallic plating a wiring part by electroplating". It is noted that this electroplating is merely the plating of selected portions of the traces 71 which are formed by the etching step of Bennin. This is merely the addition of a plating to an existing trace and the reference

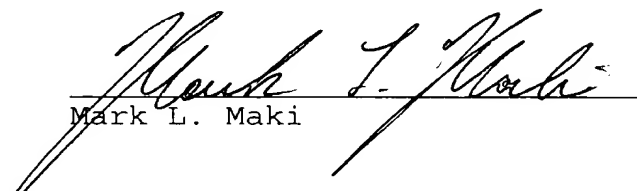
in Column 8 is not to the actual formation of the traces. Rather, formation of the traces is only accomplished in Bennin by the etching step. Therefore, the skilled artisan would not replace out the electroplating step of Bennin with a semi-additive method since the conductive traces 71 are already formed in Bennin and the electroplating and semi-additive processes distinctly differ and perform distinctly different functions.

It is noted that Applicants' own application discloses final plating of the wiring parts thereon and that this final plating differs from the forming of the wiring parts which occurs before the final plating step. To highlight the differences between these two features, Applicants hereby add dependent Claims 12-14 which define that the method further comprises a fourth step of plating the conductive material of the wiring part after the forming of the wiring part. Due to claimed differentiation, this is believed to further highlight that the forming step defined in Claims 1, 6 and 9 is a different method step than merely plating the wiring parts after the wiring parts have been formed.

In view of the foregoing, it is respectfully submitted that Bennin whether considered alone or in combination with Horiuchi does not disclose, teach or suggest Applicants' claimed invention. Bennin only discloses a specific method which distinctly differs from the claimed invention and the teachings of Bennin teach away from modifying the second step of Bennin to construct Applicants' claimed method. Accordingly, the combination of Bennin and Horiuchi requires that the teachings of Bennin be disregarded, the motivation for which coming not from the teachings of Bennin or Horiuchi but instead from an impermissible use of hindsight reasoning.

In view of the foregoing, all of Claims 1-14 are believed in condition for allowance. Further and favorable consideration of this application is respectfully solicited.

Respectfully submitted,

  
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